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EXAMINER

EDELMAN, BRADLEY E

ART UNIT PAPER NUMBER

2153

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/692,949	SWEDOR ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Bradley Edelman	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

*TL*

### **DETAILED ACTION**

This Office action is in response to Applicant's amendments and comments filed on November 5, 2004. Claims 1-50 are presented for further examination.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-4, 9-20, 25-37, 39, 41-43, 45, and 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humpleman et al. (U.S. Patent No. 6,546,419, hereinafter "Humpleman"), in view of Duffy ("HP Intros Mgmt. Apps for Router Nets, from Network World, 1994), and further as supported by Weschler, Jr. (U.S. Patent No. 6,757,720, hereinafter "Weschler").

In considering claim 1, Humpleman discloses a method for controlling a service in a network device ("device B"), comprising the steps of:

receiving at the network device a document written in accordance with a markup language ("interface document INTERFACE.XML") and a corresponding document definition ("document type definition INTERFACE.DTD") (col. 15, lines 44-52; col. 18, lines 8-11, "the XMLRPC command messages are sent to the controlled device B over the network. Upon receiving said XMLRPC command messages..."), wherein the document describes a service (col. 18, lines 12-16, "requested services");

Means for parsing by the network device the received document in accordance with the corresponding document definition (col. 18, lines 11-13, "the controlled application 84 of device B uses the XML parser 74 of device B to parse and interpret the received XML command messages");

Means for executing the service on the network device in accordance with the parsed document (col. 18, lines 14-17, "device B then decodes the parser results... to perform requested services").

However, Humpleman does not disclose that the service, device, and document relate to data forwarding, such that the document causes data forwarding services to be performed. Instead, Humpleman teaches using the above technique for controlling client/server services on a home network.

Nonetheless, it is well known to remotely control and manage not only home devices on a home network, but also routing devices on a routing network, as evidenced by Duffy. Duffy discloses that as far back as 1994, network applications were able to control and manage forwarding services on routers over a network ("from this PC, users can assign addresses, check for duplicate addresses and errors, use point-and-click commands to 'connect' routers... and validate configuration parameters for all routers," ¶ 3; "configuration files stored in a central file server and manually uploaded to the server and management station, and downloaded to AdvanceStack routers," ¶ 4). Furthermore, it is well known to control and manage such devices using XML, as evidenced by Weschler (col. 9, line 67 – col. 10, line 3, "Routers, switches, network ports, and other network devices recognize XML formatted documents

embedded in HTTP data transport packets and are configured to handle them appropriately and reliably”).

Given the teaching of Duffy and Weschler of using XML to control network routers, a person having ordinary skill in the art would have readily recognized the desirability and advantages of using the particular XML remote management document, definition, and parsing method taught by Humpleman to control network routers using XML, because XML is “well understood, actively developed, and readily transportable through a variety of communications media,” (Weschler, col. 9, lines 63-65) and would thus allow comprehensive management of network routers with few development costs.

In considering claim 17, Humpleman discloses a network device (“device B”) for locally performing a data forwarding service in response to a remote request, comprising:

Means for receiving at the network device a document written in accordance with a markup language (“interface document INTERFACE.XML”) and a corresponding document definition (“document type definition INTERFACE.DTD”) (col. 15, lines 44-52; col. 18, lines 8-11, “the XMLRPC command messages are sent to the controlled device B over the network. Upon receiving said XMLRPC command messages...”);

Means for parsing by the network device the received document in accordance with the corresponding document definition (col. 18, lines 11-13, “the controlled application 84 of device B uses the XML parser 74 of device B to parse and interpret the received XML command messages”);

Means for executing the service on the network device in accordance with the parsed document (col. 18, lines 14-17, "device B then decodes the parser results... to perform requested services").

However, Humpleman does not disclose that the service, device, and document relate to data forwarding, such that the document causes data forwarding services to be performed. Instead, Humpleman teaches using the above technique for controlling client/server services on a home network.

Nonetheless, it is well known to remotely control and manage not only home devices on a home network, but also routing devices on a routing network, as evidenced by Duffy. Duffy discloses that as far back as 1994, network applications were able to control and manage forwarding services on routers over a network ("from this PC, users can assign addresses, check for duplicate addresses and errors, use point-and-click commands to 'connect' routers... and validate configuration parameters for all routers," ¶ 3; "configuration files stored in a central file server and manually uploaded to the server and management station, and downloaded to AdvanceStack routers," ¶ 4). Furthermore, it is well known to control and manage such devices using XML, as evidenced by Weschler (col. 9, line 67 – col. 10, line 3, "Routers, switches, network ports, and other network devices recognize XML formatted documents embedded in HTTP data transport packets and are configured to handle them appropriately and reliably").

Given the teaching of Duffy and Weschler of using XML to control network routers, a person having ordinary skill in the art would have readily recognized the

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desirability and advantages of using the particular XML remote management document, definition, and parsing method taught by Humpleman to control network routers using XML, because XML is "well understood, actively developed, and readily transportable through a variety of communications media," (Weschler, col. 9, lines 63-65) and would thus allow comprehensive management of network routers with few development costs.

In considering claims 2 and 18, Humpleman further discloses the means for executing including means for interfacing with hardware and software on the network device (col. 15, lines 11-15, "in each device 14, applications at the top of the communication stack send and receive communication messages over the network, and communicate with software layers in the device stack that locally control the device hardware or service software for the device").

In considering claims 3 and 19, Humpleman further discloses that the markup language is XML ("XML").

In considering claims 4 and 20, Humpleman further discloses that the corresponding document definition is an XML DTD ("DTD").

In considering claims 9 and 25, Humpleman further discloses that the means for parsing include means for parsing from the document an identifier ("method name") corresponding to the service (col. 18, lines 13-17).

In considering claims 10 and 26, Humpleman further discloses that the means for parsing include means for parsing from the document runtime parameters corresponding to the service (col. 12, lines 63-65, "the look-up 56 table provides run-time translation of XML object method calls from Service B into device native language calls for Service A").

In considering claims 11 and 27, Humpleman further discloses means for instantiating an object corresponding to the service in accordance with the parsed identifier (col. 18, lines 19-21, "launch the native function implementations of device B").

In considering claims 12 and 28, Humpleman further discloses means for instantiating an object corresponding to the service in accordance with the parsed identifier and the parsed runtime parameters (col. 18, lines 19-21, "launch the native function implementations of device B," col. 12, lines 60-65, "run-time translation of XML object method calls").

In considering claims 13 and 29, both Weschler and Duffy further disclose that the network can be one of a multitude of devices, including a router.

In considering claims 14 and 30, both Weschler and Duffy further disclose that the network device comprises a packet forwarding architecture (i.e. a router).



In considering claims 15 and 31, Humpleman further discloses means for preparing a response corresponding to the executed service (col. 18, lines 21-24, "responses").

In considering claim 16 and 32, Humpleman further discloses means for forwarding the response to a remote requestor of the service (col. 18, lines 23-24, "responses [are] sent to the controller device A").

In considering claim 33, Humpleman discloses a network device ("device B") for locally performing a service in accordance with a received document written in a document markup language ("interface document INTERFACE.XML"), comprising:

Means for receiving at the network device a document written in accordance with a markup language ("interface document INTERFACE.XML") and a corresponding document definition ("document type definition INTERFACE.DTD") (col. 15, lines 44-52; col. 18, lines 8-11, "the XMLRPC command messages are sent to the controlled device B over the network. Upon receiving said XMLRPC command messages...");

A parser that is adapted to parse the received document in accordance with the corresponding document definition to obtain an identifier of the service (col. 18, lines 11-16, "the controlled application 84 of device B uses the XML parser 74 of device B to parse and interpret the received XML command messages," wherein the identifier is the "method name"); and

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A service launcher that is adapted to launch the service corresponding to the identifier parsed from the received document (col. 18, lines 17-21, "device B then uses the XML... to access and launch the native function implementation of device B...").

However, Humpleman does not disclose that the service, device, and document relate to data forwarding, such that the document causes data forwarding services to be performed. Instead, Humpleman teaches using the above technique for controlling client/server services on a home network.

Nonetheless, for the same reasons already discussed with regard to claims 1 and 17, it would have been obvious to use the Humpleman XML remote management document, definition, and parsing method taught by Humpleman to control data forwarding services on a network.

In considering claim 34, Humpleman further discloses a network data transfer service that is adapted to communicate with remote devices for receiving the document (col. 16, lines 13-16, "a Home Network Device Web server 86 in each of the devices A and B manages communication between the devices over the network").

In considering claim 35, Humpleman further discloses that the network data transfer service comprises an HTTP server ("Web server 86").

In considering claim 36, Humpleman further discloses that the markup language is XML ("XML").

In considering claim 37, Humpleman further discloses that the corresponding document definition is an XML DTD ("DTD").

In considering claim 39, Humpleman further discloses a services storage coupled to the service launcher that stores a plurality of services, the service launcher being further adapted to select the service from the stored plurality of services in accordance with the parsed identifier (col. 18, lines 9-21, wherein the parsing obtains method call information and a method name, which are used to select from the plurality of services – i.e. handlers – to perform the service).

In considering claim 41, Weschler and Duffy both disclose that the device further comprises a packet forwarding switch fabric (i.e. "routers," and "switches").

In considering claim 42, Weschler further discloses that the launched service causes changes in how packets are forwarded through the switch fabric (i.e. assigning addresses and connecting routers causes changes in how packets are forwarded through the switch fabric).

In considering claim 43, Weschler further discloses that the management system can also monitor performance of packet forwarding in the routers (p. 2, ¶ 2, "Traffic

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Monitor lets network managers analyze traffic patterns on all LAN segments and wide-area links from a single Windows PC or Unix workstation”).

In considering claim 45, Humpleman further discloses device APIs for interoperating with the device hardware and software for executing launched services (col. 14, lines 20-25, “API interface”).

In considering claim 47, Humpleman further discloses device APIs for interoperating with the device hardware and software for executing launched services (col. 14, lines 20-25, “API interface”).

In considering claim 48, Humpleman discloses a method for causing a network device to locally perform a service, comprising the steps of:

Identifying the service to be performed at a remote client computer, and preparing at the remote client computer a document written in a markup language in accordance with a document definition, the document including an identifier of the service (col. 18, lines 3-10, wherein “device A” generates the XML document to send a command message to device B, the document inherently including an identifier of the service – see Example 1, line 45, wherein “DVCR1.record” identifies the service);

Transmitting the document to the network device (col. 18, lines 8-9);

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Identifying at the network device the document definition corresponding to the transmitted document (col. 18, lines 10-16; col. 15, lines 44-52, wherein the DTD file corresponding to the document is also received and identified at the network device);

Parsing by the network device the transmitted document in accordance with the corresponding document definition (col. 18, lines 10-16, "parse and interpret the received XML command messages"); and

Executing the service on the network device in accordance with the parsed document (col. 18, lines 12-17, "perform requested services").

However, Humpleman does not disclose that the service, device, and document are related to a data forwarding service. Nonetheless, for the same reasons already discussed with regard to claims 1 and 17, it would have been obvious to use the Humpleman XML remote management document, definition, and parsing method taught by Humpleman to control data forwarding services on a network.

In considering claim 49, Humpleman further discloses that the markup language is XML ("XML").

In considering claim 50, Humpleman further discloses that the corresponding document definition is an XML DTD ("DTD").

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2. Claims 5-8, 21-24, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humpleman, in view of Weschler and Duffy, and further in view of Gessner (U.S. Patent Publication No. 2002/0032709, filed on Sep. 29, 1998).

In considering claims 5, 7, 21, and 23, these claims all recite retrieving the corresponding document definition from a plurality of document definitions in accordance with an identifier in the received document. Humpleman teaches a document definition corresponding to a document, but remains silent regarding how the document definition is selected or retrieved. Nonetheless, selection at run time of document definitions that correspond to a selected markup language document is well known, as evidenced by Gessner. Gessner discloses a system that uses DTDs and their corresponding documents, wherein the DTDs "may be locally stored [or] may be stored remotely on server systems and delivered at and during run time of a browser, etc. to facilitate dynamic replacement of particular grammars and to further facilitate the rendering of content based thereon." See ¶ [0041]. Thus, a person having ordinary skill in the art would have readily recognized the desirability and advantages of selecting the corresponding DTDs in the system taught by Humpleman, Weschler, and Duffy according to the id contained in the documents, to facilitate dynamic creation of the XML file, thereby further enhancing the dynamic nature of the control and command system taught by Humpleman, Weschler, and Duffy (see Humpleman, col. 2, lines 39-41). Therefore, it would have been obvious to use the dynamic DTD selection taught by Gessner in the dynamic control and command system taught by Humpleman, Weschler, and Duffy.

In considering claims 6, 8, 22, and 24, Gessner further discloses that the document definitions are provided locally ([0041], "DTD components may be locally stored").

In considering claim 38, claim 38 contains the same limitations as claims 5, 7, 21, and 23, but adds the feature that the device further comprises a document definition storage that stores the plurality of definitions from which selection is made. This storage feature is further taught by Gessner in ¶ [0041], which recites "DTD components may be locally stored."

3. Claims 40 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humpleman, Weschler, and Duffy, in view of Applicant's admission of the prior art, or alternatively in view of Jaeger et al. (Dynamic Classification in Silicon-based Forwarding Engine Environments, December 1999, hereinafter "Jaeger").

In considering claim 40, Humpleman teaches that the service launcher is adapted to launch the service using a runtime environment (col. 18, lines 10-21 describe that the service launcher generates native function implementations from the XML document, and col. 12, lines 55-65 describe that such translation occurs at run-time). However, Humpleman does not disclose the use of the "Oplet Runtime Environment." Nonetheless, the Oplet Runtime Environment is a well-known environment in the router environment, as evidenced by both Applicant's admission of

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prior art (see specification, p. 9, lines 8-16), and by Jaeger (Abstract). A person having ordinary skill in the art would have readily recognized the desirability and advantages of using the ORE to manage the routers in the system taught by Humpleman, Weschler, and Duffy because ORE "supports the creation of services in Java that are extensible, portable, and easily distributed over the network," (see Jaeger, Conclusion, p. 109). Thus, it would have been obvious to use the Oplet Runtime Environment as the runtime environment in the system taught by Humpleman, Weschler, and Duffy.

In considering claim 46, Humpleman further discloses device APIs for interoperating with the device hardware and software for executing launched services (col. 14, lines 20-25, "API interface").

4. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Humpleman, Weschler, and Duffy, in view of Dobbins et al. (U.S. Patent No. 5,951,649, hereinafter "Dobbins").

In considering claim 44, although the system taught by Humpleman, Weschler, and Duffy discloses substantial features of the claimed invention, it fails to disclose that launched service accesses a MIB on the network device. Nonetheless, Duffy discloses changing router configuration by altering 'connections' between routers. Furthermore, as shown by Dobbins, it is well known that one way to represent connections between routers and other forwarding functions is through a MIB (col. 6, lines 41-55). Thus, given this knowledge, it would have been obvious to alter the router connections in the



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system taught by Humpleman, Weschler, and Duffy by altering a MIB, because a MIB structure can be easily changed and understood by an administrator (see Dobbins, col. 6, lines 52-55).

### ***Response to Arguments***

5. Applicant's request for reconsideration filed on November 5, 2004 has been fully considered, but is unpersuasive. In considering Applicant's remarks, the following arguments are noted:

- a. The service capabilities described using XML or the like in Humpleman et al. are different in kind from data forwarding services controlled by parsing of XML documents by the present invention.
- b. The combined references include no hint or suggestion of controlling data forwarding service in a data forwarding device by parsing a received document in accordance with a correspond document definition, wherein the parsing determines at least one parameter describing a data forwarding service.

In considering (a), Applicant contends that the service capabilities described using XML or the like in Humpleman et al. are different in kind from data forwarding services controlled by parsing of XML documents by the present invention. Examiner agrees that the home networking services specifically described in Humpleman are different in kind from the claimed "data forwarding services." Nonetheless, Humpleman generally describes that the home network devices can include "computers, peripheral

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devices, routers, storage devices, and appliances” (col. 1, lines 36-37), and that “an example of a network is a home network” (col. 1, lines 38-39), and that “the term ‘device’ typically includes logical devices or other units having functionality and an ability to exchange data, and can include not only all home devices but also general purpose computers” (col. 1, lines 42-44). Thus, although Humpleman does not specifically describe particular data forwarding services in its specification, it certainly contemplates that they constitute part of the system. Consequently, Humpleman’s disclosure would not preclude a person of ordinary skill in the art from recognizing that the same XML document-control method used for the devices in Humpleman could be used to control other network-connected devices, such as routers. Humpleman’s disclosure instead encourages it.

In considering (b), Applicant contends that the combined references include no hint or suggestion of controlling data forwarding service in a data forwarding device by parsing a received document in accordance with a correspond document definition, wherein the parsing determines at least one parameter describing a data forwarding service. Examiner respectfully disagrees.

As discussed in (a) above, Humpleman taken alone at least suggests using the parsing technique claimed to control all kinds of network devices and services, one of which may include a router. Furthermore, Duffy discloses that as far back as 1994, network applications were able to control and manage forwarding services on routers over a network (“from this PC, users can assign addresses, check for duplicate

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addresses and errors, use point-and-click commands to 'connect' routers... and validate configuration parameters for all routers," ¶ 3; "configuration files stored in a central file server and manually uploaded to the server and management station, and downloaded to AdvanceStack routers," ¶ 4). Furthermore, it is well known to control and manage such devices using XML, as evidenced by Weschler (col. 9, line 67 – col. 10, line 3, "Routers, switches, network ports, and other network devices recognize XML formatted documents embedded in HTTP data transport packets and are configured to handle them appropriately and reliably"). Thus, for these reasons, as further elaborated in the claim rejections above, the combination of Humpleman, Duffy, and Weschler discloses all of the features of the claimed invention and suggests combining them in the manner claimed.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley Edelman whose telephone number is 571-272-3953. The examiner can normally be reached from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached at 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in cursive script that reads "Bradley Edelman".

BE  
April 25, 2005